

We claim

1. A method of animal feed production, comprising mixing at least one anaerobic bacterium with the feed.
2. The method of claim 1, wherein the feed is an aquaculture feed.
3. The method of claim 2, wherein the feed is a fish feed.
4. The method of claim 2, wherein the feed is a crustacean feed.
5. The method of claim 1, wherein the feed is an agriculture feed.
6. The method of claim 5, wherein the feed is a chicken feed.
7. The method of claims 1-6, further comprising mixing at least one probiotic element with the feed.
8. The method of claims 1-6, wherein at least one anaerobic bacterium is viable at the time of production.
9. The method of claims 1-7, wherein at least one anaerobic bacterium comprises a spore.
10. The method of claims 8-9, wherein the feed is produced by mixing *Clostridium difficile* spores with AquaGrow Enhance<sup>®</sup> feed.
11. The method of claim 10, wherein the *Clostridium difficile* spores are mixed with the AquaGrow Enhance<sup>®</sup> feed prior to the blending of the AquaGrow Enhance<sup>®</sup> feed.
12. The method of claim 10, wherein the *Clostridium difficile* spores are mixed with the AquaGrow Enhance<sup>®</sup> feed subsequent to the blending of the AquaGrow Enhance<sup>®</sup> feed.
13. The method of claims 1-7, wherein at least one anaerobic bacterium is non-sporulated.
14. The method of claims 1-7, wherein at least one anaerobic bacterium is non-viable at the time of production.
15. The method of claims 1-6 and 14, further comprising growing a biomass of *Clostridium difficile* under anaerobic conditions, rendering them nonviable, and cracking the *Clostridium* in a manner that retains enzymatic activity.
16. The method of claims 1-15, wherein at least one anaerobic bacterium is a *Clostridium*, *Fusobacterium*, *Peptostreptococcus*, *Bacteriodes*, *Butyrivibrio*, *Leptotrichia*, *Selenomonas*, *Succinimonas*, *Succinivibrio*, *Eubacterium*, *Lachnospira*, *Aracnia*, *Propionibacterium*, *Actinomyces*, *Bifidobacterium*, *Lactobacillus*, *Treponema*, *Borrelia*, or *Campylobacter*, or a mixture of two or more of these.

17. The method of claims 1-16, wherein at least one anaerobic bacterium comprises an obligate anaerobe.

18. The method of claims 1-9, 13-14, and 16, wherein at least one anaerobic bacterium comprises a facultative anaerobe.

19. The method of claims 1-18, wherein at least one anaerobic bacterium is recombinant.

20. The method of claim 19, further comprising genetically modifying the facultative anaerobe to express a bioactive peptide.

21. The method of claim 19, wherein at least one anaerobic bacterium comprises a recombinant bioactive compound.

22. The method of claim 19, wherein the anaerobic bacterium comprises an antisense ribonucleic acid.

23. The method of claim 19, wherein at least one anaerobic bacterium comprises a recombinant protein or peptide.

24. The method of claims 19-21, wherein at least one anaerobic bacterium comprises a cecropin, penaeidin, battenecin, callinectin, myticin, tachyplesin, clavanin, misgurin, pleurocindin, parasin, histone, acidic protein, or lysozyme.

25. The method of claim 1, further comprising growing the anaerobic bacterium, harvesting the bacterium, mixing the bacterium with yeast, and drying the bacterium.

26. The method of claim 1, further comprising growing a biomass of *Photobacterium damsela* subsp. *piscicida* under anaerobic conditions, harvesting the biomass, rendering the *Photobacterium* nonviable, and drying the *Photobacterium*.

27. An animal feed comprising at least about 0.01% anaerobic bacterium.

28. The feed of claim 27, wherein the feed is an aquaculture feed.

29. The feed of claim 28, wherein the feed is a fish feed.

30. The feed of claim 28, wherein the feed is a crustacean feed.

31. The feed of claim 27, wherein the feed is an agriculture feed.

32. The feed of claim 31, wherein the feed is a chicken feed.

33. The feed of claim 27, wherein the feed further comprises one or more probiotic elements.

34. The feed of claim 27, wherein at least one anaerobic bacterium is viable at the time of production.

35. The feed of claim 27, wherein at least one anaerobic bacterium comprises a spore.

36. The feed of claim 27, wherein at least one anaerobic bacterium is non-sporulated.

37. The feed of claim 27, wherein at least one anaerobic bacterium is non-viable at the time of production.

38. The feed of claim 27, wherein at least one anaerobic bacterium is a *Clostridium*, *Fusobacterium*, *Peptostreptococcus*, *Bacteriodes*, *Butyrivibrio*, *Leptptrichia*, *Selenomonas*, *Succinimonas*, *Succinivibrio*, *Eubacterium*, *Lachnospira*, *Aracnia*, *Propionibacterium*, *Actinomyces*, *Bifidobacterium*, *Lactobacillus*, *Treponema*, *Borrelia*, or *Campylobacter*, or a mixture of two or more of these.

39. The feed of claim 27, wherein the anaerobic bacterium comprises at least one obligate anaerobe.

40. The feed of claim 27, wherein the anaerobic bacterium comprises at least one facultative anaerobe.

41. The feed of claim 27, wherein at least one anaerobic bacterium is recombinant.

42. The feed of claim 41, wherein the recombinant anaerobic bacterium comprises one or more bioactive compound.

43. The feed of claim 42, wherein the recombinant anaerobic bacterium comprises one or more antisense ribonucleic acid.

44. The feed of claim 42, wherein the recombinant anaerobic bacterium comprises one or more recombinant protein or peptide.

45. The feed of claim 44, wherein the recombinant anaerobic bacterium comprises a cecropin, penaeidin, bactenecin, callinectin, myticin, tachyplesin, clavarin, misgurin, pleurocindin, parasin, histone, acidic protein, or lysozyme.

46. The feed of claims 27-45, wherein the anaerobic bacterium comprises from about 0.01% to 10% of the feed.

47. The feed of claims 27-45, wherein the anaerobic bacterium comprises from about 0.01% to 1.0% of the feed.

48. The feed of claims 27-45, wherein the anaerobic bacterium comprises from about 0.01% to 0.1% of the feed.

49. The feed of claims 27-45, wherein the anaerobic bacterium comprises from about 0.1% to 1.0% of the feed.